

can be simply and easily controlled without reading the function characters and/or the indication characters on the switches. Thus, it can be used even in the dark.

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Since those having ordinary knowledge and skill in the art of the present invention will recognize additional modifications and applications within the scope thereof, the present invention is not limited to the embodiments and drawings described above.

WHAT IS CLAIMED IS:

1. A multi-directional ball switch comprising:

- a panel(2) having 4 diagonally-located fixtures(9-12), each of which has an orthogonal shaft-hole(14);
- a ball knob(3) placed on said panel(2);
- a conversion means(4) that transforms the rotation of said ball knob(3) into an electric signal;
- a CPU(6) that is connected to said conversion means(4) and to a sound generation section(5);
- a switching section(7) that restrains the rotation of said ball knob(3) and generates an output value from said CPU(6); and

a signal generation section(6b) connected to said CPU(6).

2. A multi-directional ball switch as claimed in  
5 claim 1,

wherein said conversion means(4) comprises:

4 rotation shafts(26-29) that are inserted into the  
shaft holes(14) of said 4 fixtures(9-12)  
respectively; and

10 4 click encoders(22-25) into which ends of said 4  
rotation shafts(26-29) are inserted respectively;  
wherein bottoms of said 4 click encoders(22-25) are  
fixed on said panel(2)

15 3. A multi-directional ball switch as claimed in  
claim 1,

wherein said sound generation section(5) is  
established to generate different characteristic  
sounds through a speaker(5a) according to the  
20 directions of movements of said ball knob(3) such  
as up, down, left, right and press.

4. A multi-directional ball switch as claimed in  
claim 1,

25 wherein said switching section(7) comprises:

a supporting plate(33) having a hinge hole(33a);  
a hinge shaft(34) that is inserted into said hinge  
hole(33a);  
a stopper(38) that is equipped with a supporting  
5 ball(36) located at the center of said supporting  
plate(33); and  
a press sensor(39) that is installed between the  
top of free-end of said supporting plate(33) and  
the down surface of said panel(2).

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search on Internet, a cursor is scrolled into 4  
directions on the map, and at said scrolled  
position, a designated portion of said map is  
enlarged or contracted by moving said ball knob  
upward or downward in a pressing state.

8. An operation method of a multi-directional ball  
switch characterized in that, for the case of web-  
search on Internet, a cursor is quickly moved into  
a prescribed position of a search window or an  
execution command indicated on web page by rotating  
a ball knob to up/down/left/right directions, and a  
web-search window can be changed by rotating said  
ball knob to up/down/left/right directions with  
being pressed.

9. An operation method of a multi-directional ball  
switch characterized by, for the case of inputting  
Korean alphabet, moving a ball knob upward to  
select a consonant input mode, scrolling said ball  
knob upward/downward to select a desired consonant,  
and thereafter selecting a desired vowel by using  
the short/long movements of said ball knob to the  
right and/or downward directions.